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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/611,953

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EXAMINER

REKSTAD, ERICK J

ART UNIT

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/611,953	Applicant(s) KIM, MOON-CHEOL	
	Examiner ERICK REKSTAD	Art Unit 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 and 18-50 is/are pending in the application.
- 4a) Of the above claim(s) 8-16 and 19-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

This is a Non-Final Office Action for application no. 10/611,953 in response to the RCE filed on February 28, 2008. Claims 1-16 and 18-50 are presented, with claims 1-7 and 18 presented for examination while claims 8-16 and 19-50 have been withdrawn.

Response to Arguments

Applicant's arguments with respect to claims 1-7 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments related to the maintained rejection of claim 5 have been fully considered but they are not persuasive. The Applicant argues that Nakajima fails to teach the requirements of claim 5. The Examiner respectfully disagrees. From the citation provided by the Applicant, Nakajima teaches an equivalent operation to that of the Applicant (Spec. Page 8 Paragraph [0038]). It is viewed by the Examiner that the operations performed by Nakajima (Col 6 Lines 31-46) are equivalent to the Applicant's signal band 0-255. Therefore it is viewed by the Examiner that Nakajima teaches the requirements of claim 5.

Claim Objections

Claims 1 and 2 are objected to because of the following informalities: Claim 1 states "ouutput" which should be "output". Claim 2 states "first color conversion unit" which should be "first color space conversion unit". Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, and 4-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,719,643 to Nakajima in view of US Patent 5,978,830 to Nakaya et al. [claims 1 and 2]

As shown in Figure 2, Nakajima teaches the requirements of claim 2. The system comprises a first and second frame buffer (1 and 2) storing two image frame data, respectively, to detect a scene change. The system further comprises a first and second color space conversion units (3 and 4) for converting the image frame data stored in the first and second frame buffers into the first and second color signals to be outputted to a histogram detection unit(8) (Col 3 Lines 66-Col 4 Line 7 and Col 4 Lines 19-27). The Chrominance Histogram Correlation Unit (8) of Nakajima performs the operation of obtaining histograms for the two signals ($H_{n,j,k}$ and $H_{n-1,j,k}$) as required by claim 1 (Col 6 Lines 31-65). The Chrominance Histogram Correlation Unit (8) further calculates a correlation value between the first histogram and the second histograms (ρ) (Col 6 Lines 55-65). A decision unit (9) outputs a scene change signal by comparing the correlation value with a threshold (Col 6 Line 66-Col 7 Line 4, Fig. 7). Nakajima is silent on the use of a first histogram detection unit and a second histogram detection unit to compute concurrently a first histogram and a second histogram.

Nakaya teaches the use of parallel processing in order to improve system performance (Col 1 Lines 44-48, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to use the parallel processing apparatus of Nakaya with the histogram generating means of the scene change detector of Nakajima in order to improve the performance of concurrent operations (Col 1 Lines 44-48).

[claim 4]

Nakajima teaches the color signals are chroma color signals (Col 6 Line 29-30).

[claim 5]

Nakajima teaches the histogram detection units quantize the input first and second color signals to signal bands, respectively, each calculated the number of pixels having the same values of the quantized first and second color signals with respect to all pixels in a predetermined frame region, and calculate the first and second histograms by standardizing the calculated respective numbers, respectively (Col 6 Lines 31-54, Fig. 6).

[claim 6]

Nakajima further teaches the decision unit outputs the scene change signal when the correlation value (ρ) is less than the threshold (δ) (Col 7 Lines 11-17, Fig. 7).

[claim 7]

Nakajima teaches the threshold(δ) value is 0.9 (Col 7 Line 40-44).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 5,719,643 to Nakajima and US Patent 5,978,830 to Nakaya as applied to claim 2 in further view of 'Scene Abrupt Change Detection' to Wang et al.

[claim 3]

As shown above, Nakajima and Nakaya teach the scene change detector of claims 1 and 2. Nakajima further teaches the use of histograms of the chrominance color signals for detecting a scene change (Col 6 Line 55-Col 7 Line 4). As shown in Figure 2, luminance color signals are processed separately from the chrominance color signals (Col 4 Lines 7-15). Nakajima and Nakaya are silent on the use of luminance histograms.

Wang teaches luminance and chrominance information can be interpreted independently for scene change detection (2. Approach). Wang further teaches an improvement to scene change detection is the use of luminance histograms as luminance histograms provide more information to perform scene change detection (2.1 Color Space Convert). It would have been obvious to replace the scene change detection based on luminance of Nakajima with the scene change detection based on luminance histograms as Wang teaches the method provides a simple and adaptable scene change detection (Abstract).

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over 'Scene Abrupt Change Detection' to Wang et al. in view of US Patent 5,978,830 to Nakaya.

[claim 18]

As shown on Page 882, Wang teaches six steps for detecting a scene change. The combination of the provided steps with the example provided in section '3.Results and discussion' teach the requirements of claim 18. As shown in section '3.Results and Discussion' the method begins with 100 stored frames. Steps 1 and 2 convert each

frame data into frame color signal (luminance (Y)). Note, the luminance (Y) is obtained for each frame. Step 3 teaches calculating histograms for each frame. As depicted in the example provided in section '3. Results and Discussion', the scene detection method obtains 100 histograms for the 100 frames of the video. Step 4 performs the operation of calculating a correlation value between the first and second histograms. Step 6 outputs a scene change signal when the correlation value is less than a threshold (Section 2.2 Twice Difference Algorithm and 3. Results and Discussion). Wang is silent on the use of concurrent computing of histograms.

Nakaya teaches the use of parallel processing in order to improve system performance (Col 1 Lines 44-48, Fig. 1). It would have been obvious to one of ordinary skill in the art at the time of the invention to perform the histogram calculations of Wang in parallel as Nakaya teaches parallel processing improves the performance of a system (Abstract, Col 1 Lines 44-48).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERICK REKSTAD whose telephone number is (571)272-7338. The examiner can normally be reached on 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mehrdad Dastouri can be reached on 571-272-7418. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Erick Rekstad/
Examiner, Art Unit 2621